

# **METHODS AND APPARATUS FOR MANUFACTURING OPERATIONS USING OPPOSING-FORCE SUPPORT SYSTEMS**

## **ABSTRACT OF THE DISCLOSURE**

5           Methods and apparatus for manufacturing operations using opposing-force support  
systems are disclosed. In one embodiment, an apparatus includes a track assembly adapted  
to be attached to a workpiece, and a carriage moveably coupled to the track assembly. The  
carriage includes a tool support adapted to receive and support a manufacturing tool. An  
opposing-force support assembly is operatively coupled to the carriage and is adapted to be  
10   secured to the workpiece. The opposing-force support assembly at least partially  
counterbalances a manufacturing force exerted on the workpiece by the manufacturing tool.

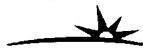


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**BLACK LOWE & GRAHAM<sup>PLLC</sup>**

  
816 Second Avenue  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301